Fact Sheet

US Army Engineer
Research and Development Center
Waterways Experiment Station

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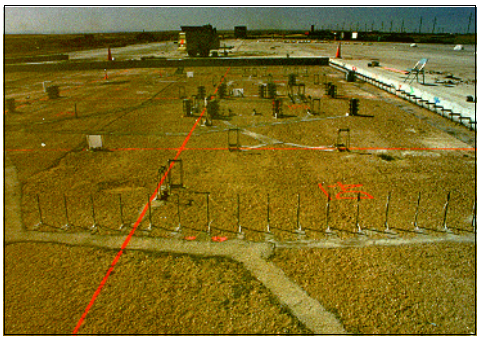
Pavement Instrumentation

Purpose: Instrument sections of pavements to monitor response induced by loads (vehicles, aircraft, load cart, etc.) and changes in environmental conditions (temperature, moisture, etc.).

Background: The U.S. Army Engineer Waterways Experiment Station (WES) pavements and instrumentation group have had many years' experience in installation of instrumentation in harsh environments including numerous large-scale pavements tests. The larger pavement instrumentation projects consists of the Multiple-Wheel Heavy Gear Load Pavement Tests (MWHGL) conducted in the 1970's and the ongoing Denver Instrumentation Project located on a primary runway at the Denver International Airport. The MWHGL tests were sponsored by the U.S. Air Force to obtain data on pavement and soil behavior under large aircraft loadings for use in developing criteria for evaluating and designing of airfield pavements. The Denver instrumentation project initiated in 1992 and sponsored by the Federal Aviation Administration is to verity new airport pavement design concepts by collecting pavement response and performance data. The MWHGL tests included the instrumentation of both rigid and flexible pavements; whereas, the Denver Project only included rigid pavement. Several smaller scale instrumentation projects have been conducted at WES on both flexible and rigid pavements as part of criteria development and pavement performance studies.



Instrumentation at DIA

Facts: WES has successfully instrumented rigid and flexible pavements for both long and short term performance. Instrumentation includes deflection sensors, pressure cells, strain gages, pore pressure cells, joint meters, soil moisture gages, temperature gages, resistivity gages, and photoelectric beam sensors. The instrumentation has included commercially available sensors as well as sensors designed and validated at WES. Data acquisition system are designed and fabricated by the WES instrumentation group to monitor both static and dynamic pavement response under controlled and unmanned conditions.

Point of Contact: For more information regarding pavement instrumentation, contact Dr. Albert J. Bush, III at (601) 634-3545 or e-mail at busha1@wes.army.mil. General information on WES is available on the web site at http://www.wes.army.mil.